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AMENDMENTS TO THE CLAIMS

Please add Claims 59-110.

Please cancel Claims 1-19 and 29-47.

Please amend Claims 20, 23, 26, 48, 49, 51, and 54 as follows:

1-19.   (Canceled).

20.   (Currently Amended) A process for a digital video recorder, comprising the steps of:

storing a plurality of multimedia programs in digital form on a storage device;

displaying a list of previously recorded multimedia programs stored on said storage device to a user;

wherein the user selects previously recorded multimedia programs from said list;

simultaneously playing back at least one of said selected previously recorded multimedia programs and a multimedia program whose storage is in progress to at least one display device; and

wherein said playing back step allows playback rate and direction of each multimedia program to be controlled individually and simultaneously to perform any of: variable-rate fast forward, and rewind, frame step, pause, and play functions.

21.   (Previously Presented) The process of Claim 20, wherein said playing back step converts said at least one of said selected multimedia programs and said multimedia program whose storage is in progress into display output signals;

22.   (Previously Presented) The process of Claim 21, further comprising the step of: inserting on-screen displays into a display output signal.

23. (Currently Amended) The process of Claim 20, wherein a user controls the playback rate and direction of a multimedia program through a remote control.

24. (Original) The process of Claim 20, further comprising the step of:

providing a multimedia recording device, wherein said playing back step sends a multimedia program to said multimedia recording device, allowing a user to record said multimedia program.

25. (Original) The process of Claim 20, further comprising the step of:

providing editing means for creating custom sequences of video and/or audio output; and

wherein said editing means allows any number of video and/or audio segments of multimedia programs to be lined up and combined and stored on said storage device.

26. (Currently Amended) The process of Claim 20, further comprising the steps of:

providing a plurality of input signal tuners;

wherein said tuners accept analog and/or digital multimedia program signals;

wherein each of said tuners is individually tuned to a specific multimedia program; and

converting analog multimedia programs into a digital representation; and

wherein said storing step separates a digitized analog multimedia program or digital multimedia program into its video and audio components before storing on said storage device.

27. (Original) The process of Claim 26, further comprising the step of:

providing means for synchronizing video and audio components for proper playback.

28. (Original) The process of Claim 26, wherein an input signal tuner receives any of: software updates or data.

29-47. (Canceled).

48. (Currently Amended) An apparatus for a digital video recorder, comprising:

a module for storing a plurality of multimedia programs in digital form on a storage device;

a module for displaying a list of previously recorded multimedia programs stored on said storage device to a user;

wherein the user selects previously recorded multimedia programs from said list;

a module for simultaneously playing back at least one of said selected previously recorded multimedia programs and a multimedia program whose storage is in progress to at least one display device; and

wherein said playing back module allows playback rate and direction of each multimedia program to be controlled individually and simultaneously to perform any of: variable-rate fast forward, and rewind, frame step, pause, and play functions.

49. (Currently Amended) The apparatus of Claim 48, wherein said playing back step module converts said at least two of said multimedia programs into display output signals;

50. (Previously Presented) The apparatus of Claim 49, further comprising:

a module for inserting on-screen displays into a display output signal.

51. (Currently Amended) The apparatus of Claim 48, wherein a user controls the playback rate and direction of a multimedia program through a remote control.

52. (Original) The apparatus of Claim 48, further comprising:

a multimedia recording device, wherein said playing back module sends a multimedia program to said multimedia recording device, allowing a user to record said multimedia program.

53. (Original)   The apparatus of Claim 48, further comprising:

editing means for creating custom sequences of video and/or audio output; and

wherein said editing means allows any number of video and/or audio segments of multimedia programs to be lined up and combined and stored on said storage device.

54. (Currently Amended) The apparatus of Claim 48, further comprising:

a plurality of input signal tuners;

wherein said tuners accept analog and/or digital multimedia program signals;

wherein each of said tuners is individually tuned to a specific multimedia program; and

a module for converting analog multimedia programs into a digital representation; and

~~wherein said storing module separates a digitized analog multimedia program or digital multimedia program into its video and audio components before storing on said storage device.~~

55. (Original)   The apparatus of Claim 54, further comprising the step of:

means for synchronizing video and audio components for proper playback.

56. (Original)   The apparatus of Claim 54, wherein an input signal tuner receives any of: software updates or data.

57. (Previously Presented) The process of Claim 20, wherein said playing back step plays back said at least two of said multimedia programs in a picture in a picture format to a display device.

58. (Previously Presented) The process of Claim 48, wherein said playing back module plays back said at least two of said multimedia programs in a picture in a picture format to a display device.

59. (New) A method for the simultaneous storage and retrieval of audiovisual information, comprising:

receiving audiovisual information, the audiovisual information containing a plurality of video frames;

generating identifying information associated with at least one video frame using a mediator that mediates between a storage device, a memory, and a CPU;

storing video frames on the storage device;

retrieving at least one particular video frame from the storage device using identifying information associated with the at least one particular video frame; and

wherein the storing step and retrieving step are performed simultaneously.

60. (New) The method of Claim 59, further comprising:

accepting a control command; and

wherein the retrieving step retrieves the at least one video frame in response to the control command.

61. (New) The method of Claim 59, wherein the audiovisual information is selected from a group consisting of: a digital television signal, an analog television signal, and a compressed digital video signal.

62. (New) The method of Claim 59, wherein the mediator operates autonomously from the CPU.

63. (New) The method of Claim 59, wherein the mediator frees the CPU from processing video frames.

64. (New) The method of Claim 59, wherein the generating step operates autonomously from CPU operations.

65. (New) The method of Claim 59, wherein the mediator selects a storage device among a plurality of storage devices for use in the storing step.

66. (New) The method of Claim 59, wherein the storage device is a hard drive.

67. (New) A method for implementing a digital video recorder, comprising:

generating identifying information associated with a plurality of video frames within a video signal received by the digital video recorder using a mediator in the digital video recorder that mediates between a storage device, a memory, and a CPU;

referencing particular video frames for display on a display device using identifying information associated with the particular video frames; and

wherein the generating step and referencing step are performed simultaneously.

68. (New) The method of Claim 67, further comprising:

storing video frames on a storage device; and

wherein the referencing step retrieves the particular video frames from the storage device.

69. (New) The method of Claim 68, wherein the storage device is a hard drive.

70. (New) A method for the simultaneous storage and retrieval of multimedia data, comprising:

receiving multimedia data in a buffer obtained from a set of buffers;

processing the received multimedia data;

storing processed multimedia data on a storage device;

receiving a request for stored multimedia data;

allocating an available buffer from the set of buffers;

retrieving multimedia data from the storage device; and

writing the retrieved multimedia data to the allocated buffer.

71.   (New) The method of Claim 70, further comprising:

accepting a control command that affects a rate of requests for stored multimedia

data.

72.   (New) The method of Claim 70, further comprising:

accepting a control command that affects the retrieving step's retrieval of stored

multimedia data.

73.   (New) The method of Claim 70, wherein the set of buffers is comprised of a

fixed number of buffers.

74.   (New) A recording apparatus, comprising:

circuitry for receiving audiovisual information, the audiovisual information

containing a plurality of video frames;

a storage device; and

a mediator that mediates between the storage device, a memory, and a CPU, the

mediator:

generates identifying information associated with a video frame; and

simultaneously delivers video frames to the storage device and retrieves

particular video frames from the storage device using identifying information

associated with the particular video frames.

75.   (New) The apparatus of Claim 74, further comprising:

circuitry for accepting a control command; and

wherein the mediator retrieves the at least one video frame in response to the

control command.

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76. (New) The apparatus of Claim 74, wherein the audiovisual information is selected from a group consisting of: a digital television signal, an analog television signal, and a compressed digital video signal.

77. (New) The apparatus of Claim 74, wherein the mediator operates autonomously from the CPU.

78. (New) The apparatus of Claim 74, wherein the mediator frees the CPU from processing video frames.

79. (New) The apparatus of Claim 74, wherein the mediator selects a storage device among a plurality of storage devices that the mediator delivers video frames to.

80. (New) The apparatus of Claim 74, wherein the storage device is a hard drive.

81. (New) An apparatus for the simultaneous storage and retrieval of audiovisual information, comprising:

a module for receiving audiovisual information, the audiovisual information containing a plurality of video frames;

a module for generating identifying information associated with at least one video frame using a mediator that mediates between a storage device, a memory, and a CPU;

a module for storing video frames on the storage device;

a module for retrieving at least one particular video frame from the storage device using identifying information associated with the at least one particular video frame; and

wherein the storing module and retrieving module operate simultaneously.

82. (New) The apparatus of Claim 81, further comprising:

a module for accepting a control command; and

wherein the retrieving module retrieves the at least one video frame in response to the control command.

83. (New) The apparatus of Claim 81, wherein the audiovisual information is selected from a group consisting of: a digital television signal, an analog television signal, and a compressed digital video signal.

84. (New) The apparatus of Claim 81, wherein the mediator operates autonomously from the CPU.

85. (New) The apparatus of Claim 81, wherein the mediator frees the CPU from processing video frames.

86. (New) The apparatus of Claim 81, wherein the generating module operates autonomously from CPU operations.

87. (New) The apparatus of Claim 81, wherein the mediator selects a storage device among a plurality of storage devices for use by the storing module.

88. (New) The apparatus of Claim 81, wherein the storage device is a hard drive.

89. (New) An apparatus for implementing a digital video recorder, comprising:

a module for generating identifying information associated with a plurality of video frames within a video signal received by the digital video recorder using a mediator in the digital video recorder that mediates between a storage device, a memory, and a CPU;

a module for referencing particular video frames for display on a display device using identifying information associated with the particular video frames; and

wherein the generating module and referencing module operate simultaneously.

90. (New) The apparatus of Claim 89, further comprising:

a storage device;

a module for storing video frames on the storage device; and

wherein the referencing module retrieves the particular video frames from the storage device.

91. (New) The apparatus of Claim 90, wherein the storage device is a hard drive.

92. (New) An apparatus for the simultaneous storage and retrieval of multimedia data, comprising:

a module for receiving multimedia data in a buffer obtained from a set of buffers;

a module for processing the received multimedia data;

a module for storing processed multimedia data on a storage device;

a module for receiving a request for stored multimedia data;

a module for allocating an available buffer from the set of buffers;

a module for retrieving multimedia data from the storage device; and

a module for writing the retrieved multimedia data to the allocated buffer.

93. (New) The apparatus of Claim 92, further comprising:

a module for accepting a control command that affects a rate of requests for stored multimedia data.

94. (New) The apparatus of Claim 92, further comprising:

a module for accepting a control command that affects the retrieving module's retrieval of stored multimedia data.

95. (New) The apparatus of Claim 92, wherein the set of buffers is comprised of a fixed number of buffers.

96. (New) A computer-readable medium carrying one or more sequences of instructions for the simultaneous storage and retrieval of audiovisual information, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

receiving audiovisual information, the audiovisual information containing a plurality of video frames;

generating identifying information associated with at least one video frame using a mediator that mediates between a storage device, a memory, and a CPU;

storing video frames on the storage device;

retrieving at least one particular video frame from the storage device using identifying information associated with the at least one particular video frame; and

wherein the storing step and retrieving step are performed simultaneously.

97. (New) The computer-readable medium as recited in Claim 96, further comprising:

accepting a control command; and

wherein the retrieving step retrieves the at least one video frame in response to the control command.

98. (New) The computer-readable medium as recited in Claim 96, wherein the audiovisual information is selected from a group consisting of: a digital television signal, an analog television signal, and a compressed digital video signal.

99. (New) The computer-readable medium as recited in Claim 96, wherein the mediator operates autonomously from the CPU.

100. (New) The computer-readable medium as recited in Claim 96, wherein the mediator frees the CPU from processing video frames.

101. (New) The computer-readable medium as recited in Claim 96, wherein the generating step operates autonomously from CPU operations.

102. (New)   The computer-readable medium as recited in Claim 96, wherein the mediator selects a storage device among a plurality of storage devices for use in the storing step.

103. (New)   The computer-readable medium as recited in Claim 96, wherein the storage device is a hard drive.

104. (New)   A computer-readable medium carrying one or more sequences of instructions for implementing a digital video recorder, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

generating identifying information associated with a plurality of video frames within a video signal received by the digital video recorder using a mediator in the digital video recorder that mediates between a storage device, a memory, and a CPU;

referencing particular video frames for display on a display device using identifying information associated with the particular video frames; and

wherein the generating step and referencing step are performed simultaneously.

105. (New)   The computer-readable medium as recited in Claim 104, further comprising:

storing video frames on a storage device; and

wherein the referencing step retrieves the particular video frames from the storage device.

106. (New)   The computer-readable medium as recited in Claim 105, wherein the storage device is a hard drive.

107. (New)   A computer-readable medium carrying one or more sequences of instructions for the simultaneous storage and retrieval of multimedia data, which

instructions, when executed by one or more processors, cause the one or more processors

to carry out the steps of:

        receiving multimedia data in a buffer obtained from a set of buffers;

        processing the received multimedia data;

        storing processed multimedia data on a storage device;

        receiving a request for stored multimedia data;

        allocating an available buffer from the set of buffers;

        retrieving multimedia data from the storage device; and

        writing the retrieved multimedia data to the allocated buffer.

108.   (New) The computer-readable medium as recited in Claim 107, further

comprising:

        accepting a control command that affects a rate of requests for stored multimedia

data.

109.   (New) The computer-readable medium as recited in Claim 107, further

comprising:

        accepting a control command that affects the retrieving step's retrieval of stored

multimedia data.

110.   (New) The computer-readable medium as recited in Claim 107, wherein the set

of buffers is comprised of a fixed number of buffers.